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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/248,392	02/12/1999	HUBERTUS ALEXANDER SPAEPEN	GB97/023	8699

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EXAMINER

LISH, PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/248,392

**Applicant(s)**SPAEPEN, HUBERTUS  
ALEXANDER**Examiner**

Peter J. Lish

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 6/7/05 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 23 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 23 and the corresponding amendment to the specification at line 20 of page 21 represent a situation of new matter. No support for the newly claimed range exists in the originally filed application.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matthews et al. (US 5,679,220).

Matthews et al. teaches a process for the production of precipitated calcium carbonate by the reaction of a slurry of calcium hydroxide with carbon dioxide gas. The aqueous calcium hydroxide slurry is mixed with an aqueous slurry any of a variety of papermaking fibers, such as cellulosic or recycled fibers. Carbon dioxide is then introduced into the slurry, preferably at a number of locations, 2 or more, along the length of the reactor (column 7, lines 5-23). It is taught that it is necessary to shear the slurry at or immediately after the introduction of the carbon dioxide gas, in order to form small bubbles of carbon dioxide to ensure efficient contact and reaction. It is also taught that inline mixers may be applied at or immediately after the carbon dioxide inlets in order to ensure this mixing (column 7, lines 43-62). The reaction occurs between flowing streams, whereby the entire process is continuous.

Matthews et al. does not explicitly disclose the use of 3 or more, such as 4 to 7, in-line static mixers, however, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use 3 or more, such as 4 to 7, in-line static mixers in the process of

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Matthews et al. because the use of multiple carbon dioxide introduction locations and corresponding in-line mixers is taught by Matthews et al.

Regarding claims 6-9, the pressure in the mixing/reaction zone may vary from one to several atmospheres, which is seen in incorporate the claimed hydraulic pressure range of 50-100 kPa. Matthews et al. does not disclose that the hydraulic pressure of the aqueous suspension progressively falls as it passes through the series of in-line mixers; however, one of ordinary skill in the art at the time the invention was made would optimize the hydraulic pressure throughout the process, especially at the static in-line mixers, in order to provide a continuous flow of products as well as intimate mixing. It is also well known in the art that hydraulic pressure falls as it flows through piping, mixers, conduits, bends, etc.

Regarding claims 10-12, Matthews et al. does not teach that carbon dioxide is independently supplied to each mixing site from a common source or using independent pressure control; however, it would have been obvious to one of ordinary skill in the art to do so in view of good process control technique since independent supply of carbon dioxide to each mixing site would result in better control over the rate at which calcium carbonate product is produced and the morphology of the product.

Regarding claims 16-18, no difference is seen between the fibers of the Matthews et al. and the fines from a papermaking process, as claimed.

Regarding claims 19-21, Matthew et al. does not disclose the mixing ratio of fiber slurry and calcium hydroxide slurry, however, it would have been obvious to one of ordinary skill at the time of invention to utilize a mixing ratio between 1:10 and 10:1, or wherein the fibers constitute between 0.5 and 20% by weight of the combined slurry, because doing so is seen to be

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the optimization of a known process and is held to be obvious by *In re Boesch*, 205 USPQ 215.

The use of an inline mixer to mix the combined slurry, as in claim 21, is also held to be obvious to one of ordinary skill at the time of invention, as Matthews teaches that inline mixers increase the speed and efficiency of mixing when mixing two flowing streams.

Matthews et al. does not explicitly teach that the inline mixers be static inline mixers. However, static inline mixers represent a well-known type of inline mixer (see Perry's Handbook, pages 19-19 to 19-23 and 21-57 to 21-59 as supplied by the applicant). It would have been obvious to one of ordinary skill at the time of invention to use a static inline mixer as the inline mixer taught by Matthews et al., as it is expected to achieve the desired effect and does not necessitate the use of further expensive mixing equipment.

### ***Response to Arguments***

Applicant's arguments filed 6/7/05 have been fully considered but they are not persuasive. The applicant argues that it would not have been obvious to use a "static" inline mixer in the process of Matthews et al. In response, the examiner points to his previous response to these arguments in the office action mailed 1/11/05.

The applicant additionally argues that Matthews et al. does not teach the use of more than one mixer or carbon dioxide inlet. However, it is seen that Matthews et al. does indeed teach the use of 2 or more carbon dioxide inlets and corresponding mixers.

The applicant also argues that the carbon dioxide of Matthews et al. is introduced in a contact zone as opposed to a reaction zone. However, it is taught by Matthews et al. that the reaction can proceed to completion in the contact zone and that the reaction zone need only be

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employed to ensure 100% reaction, as leftover calcium hydroxide is detrimental to the product.

It is also taught that the mixing of the carbon dioxide into the slurry be of utmost importance because of the swiftness of reaction upon mixing.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL

  
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